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THE OUTLOOK FOR PAINT MANUFACTURE

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The paint manufacturing industry is one of the few important fields of enterprise which still remain comparatively free from the tendency towards combination and consolidation; consequently the distress attendant upon the recent business depression was more widely distributed, but less acute in this than in some other fields.

The paint trade enjoyed a distinct advantage from the fact that while the manufacturing, commercial and financial institutions of the country were seriously embarrassed by loss of confidence and shortage of funds, the rural populace, especially in agricultural communities, were at no time seriously incommoded, one good crop year having succeeded another, so that the "panic" scarcely affected the country districts at all, except sentimentally. This condition, coupled with the extraordinary selling efforts put forth by the trade, maintained the consumption of what are technically known as "shelf-goods" at nearly the average normal volume. In structural, railway, manufacturing and technical lines, the condition was, of course, reversed, consumption falling to the minimum, and the competition for such trade as was offered cutting away all possible margin of profit.

The annual consumption of paints, and varnishes of all kinds in the United States, certainly exceeds \$200,000,000, the three items of white lead, zinc oxide and linseed oil alone amounting to nearly \$40,000,000 of the total. Roughly speaking, this consumption is about equally divided between what may be called house-painting products and technical products (railway and bridge paints, wagon and implement paints, etc.). We may, therefore, estimate pretty closely, that during the two years of depression, paint consumption was reduced by about one-half, the reduction in the first classification being about balanced by the remaining demand in the second.

Such a condition naturally involved some expert financing, a reduction of forces to the minimum and the enforcement of rigid

economy all along the line. That practically the entire industry weathered the storm speaks volumes for the business sagacity and ability of those engaged in it. Recovery has been gradual but persistent. The demand in house-painting goods had reached the normal volume nearly a year ago, and in manufacturing and structural goods there now is almost complete recovery.

The demand in the car-building and railroad department has, however, lagged behind. In fact it is only at this writing that these lines give evidence of recovery. Recovery in this particular industry is significant. According to Dr. C. B. Dudley, Chief Chemist, the Pennsylvania Railroad alone in 1906 consumed annually nearly a million dollars' worth of paints. According to Poor's Manual, the Pennsylvania Railroad operates about one-fifteenth of the railroad equipment of the country, while its mileage is less than one-thirtieth the total. Allowing for the high grade of maintenance characterizing this road, we shall perhaps be conservative in estimating the total railway consumption of the country at \$12,000,000 to \$15,000,000 annually. The addition or subtraction of this consumption naturally means much to those houses that cater to it.

But we have further to consider the fact that during more than two years past, this consumption has been limited on the basis of "rigid economy," and that now not only must the railways add their normal annual equipment, but they must also add the new equipment deferred for two years, besides providing for the repairs and renewals deferred during the same period. We may, therefore, expect that the railways during the coming year will be forced to distribute between \$20,000,000 and \$30,000,000 among paint and varnish manufacturers.

Large construction also has lagged notoriously during and since the fall of 1907, but a vast revival is already apparent in this department. Here, again, we shall find, along with the construction of normal times, an important increment from deferred operations. In this field then we may also anticipate an extraordinary demand during 1910. These are but concrete examples of what is to be anticipated from the entire field of paint consumption.

The paint manufacturing industry as a whole, has advanced rapidly during the past ten years, the temporary set-back of 1907 being but an incident. This is particularly true of the prepared paint industry, including in the term "prepared paint" all those

products in which the materials are prepared practically ready for use by mechanical means, in contradistinction to those products which the consumer must temper and combine for use. During the decade under consideration there has been a general reconstruction of factories along modern lines of mechanical efficiency and operating economy. Wood construction has been widely replaced by concrete or slow-combustion millwork and electrical distribution of power has in many places superseded distribution through shafting and belting.

Side by side with this advance in mechanical efficiency has proceeded an interesting technical development of which the end is not yet in sight. The trained chemist and physical investigator has risen in authority over the old inherited "formula book," or the private "note book" of the shifting factory superintendent. This vital change has been reflected in increased efficiency, both at the buying and the selling end; the raw materials being bought and inspected according to chemical and physical standards and formulas being revised to fit discovered facts of service, rather than the reverse.

Consolidation, as has been remarked, has made but little headway in the paint trade, yet the modern co-operative spirit has made its way here as elsewhere. This spirit is manifested not only in the social, financial and industrial betterment schemes operative in many of the larger plants, but also in the co-operative work maintained in the Bureau of Promotion and Development of the Paint Manufacturers' Association. This bureau not only carries on systematic educational work among paint dealers, but also in its "Scientific Section," maintains a well equipped laboratory for technical experiment and research, the results of which are regularly placed at the disposal of all the members. The bureau furthermore, in co-operation with various technical bodies—the North Dakota Agricultural College, the American Society for Testing Materials, the Geological Survey, the Bureau of Roads, etc.—has erected and maintains wood and steel test fences at various points, to test on a large scale and under known conditions, the action of the various pigments, vehicles and formulas.

To illustrate the significance and importance of this work, let us consider briefly the steel test fences at Atlantic City and Pittsburgh. Some three years since, Dr. Allerton S. Cushman, of the

United States Department of Agriculture, and Dr. Percy H. Walker, one of his colleagues, in investigating the corrosion of steel fence wire and steel highway culverts, became convinced that some commonly used paint materials promote, while others prevent—or, to use Dr. Cushman's lucid term "inhibit," corrosion. Drs. Cushman and Walker communicated their observations to the American Society for Testing Materials and the Department of Agriculture issued a bulletin on the subject.

The Bureau of Proportion and Development, realizing the importance of the matter to the paint trade, then came forward and proposed to erect, under the supervision of the American Society for Testing Materials, a steel plate fence at Atlantic City and a steel wire fence at Pittsburgh, where these conclusions could be given a comprehensive field test. The results thus far seem to justify the conclusion that corrosion in steel structures is ordinarily caused by electrolysis induced by currents set up in the steel itself; that some pigments and vehicles promote such corrosion by acting as electrolytes to conduct the current; and that others inhibit such corrosion by rendering the steel surface "passive" or incapable of electrolytic corrosion. The final confirmation of these apparent facts and their practical application in the industry will mean much, not only to the farmers who use fence wire and the railway and other interests which utilize vast quantities of steel materials, but also to the natural resources of the country—for iron ore is an exhaustible commodity, which, as has been pointed out, when once gone can never be renewed.

The wooden fences referred to are maintained for similar purposes and have already thrown much light upon the causes for the deterioration of paint and the means to be adopted for preventing or deferring it. One very important conclusion already officially promulgated as a result of these tests is the maxim that "a mixture of two or more of the prime white pigments (white lead, oxide of zinc, sublimed white lead, etc.) when used alone or in combination with a small percentage of inert pigments (barytes, silica, silicate of aluminum, silicate of magnesium, etc.) makes a paint far superior to that made from one pigment alone." This is almost a revolutionary dictum, coming from technical men, meaning as it does in plain English, that the prepared paint manufacturers are right and the advocates of so-called "pure paints" wrong in their contentions.

During the past three or more years well-intended but ignorantly devised paint legislation has threatened and harassed the trade. Laws now exist in several states requiring the complete paint formula to appear on the package. Similar laws have been proposed in a number of the remaining states and in Congress, but have thus far been successfully opposed. In some of the Western States also, legislation, modeled on European lines and looking to the prohibition of white lead on the ground of its toxic properties, has been introduced, but that also has been successfully opposed.

As this subject concerns the public and is of vital importance to the paint manufacturing industry, it may not be out of place to devote a paragraph to it here. The ostensible object of such legislation is to guard the paint consuming public against fraud. Its practical result is to check investigation and improvement, to promote the sale of known materials as against unfamiliar ones, and eventually, by exalting the published formula at the expense of the trade-mark and brand, to force consolidation on a reluctant trade. If the formula gave the information it is supposed to give, more might be said of such laws; but every practical paint man knows that the chemical formula is but one factor in the service-value of a paint, and that to publish the formula alone serves merely to mislead the purchaser. The demand for such legislation is but a manifestation of the social awakening that has been evident among us since the dawn of this century—a little eddy of the wave of reform that is sweeping over us. The people are eager to clean house—to “cleanse out the old leaven” to the last trace. Abuses have been discovered in the paint trade, and in the eagerness to correct them, the purifiers have not taken serious thought of the consequences of lopping off a limb to cure a corn.

The same abuses have characterized all commerce, and legislation to correct them should be broad enough to include them all. To effect this a general law requiring a statement of net contents on goods sold ostensibly by weight or measure, and penalizing misstatements on labels or in advertising (such as the British merchandise mark act), would cover the entire range of products.

In conclusion, the paint industry of the country is, at this writing, in a healthy and prosperous condition, with an inspiring outlook in the near future.